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EXAMINER	
STACE, BRENT S	

ART UNIT	PAPER NUMBER
2161	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/610,690	LEVINE ET AL.	
	Examiner	Art Unit	
	Brent S. Stace	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 October 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. This communication is responsive to the amendment filed October 26th, 2007. Claims 1-15 and 17-20 are pending. In the amendment filed October 26th, 2007, Claims 1, 11, 17, and 20 are amended, and Claims 1, 11, 17, and 20 are independent Claims.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/26/07 has been entered.

Response to Arguments

3. Applicant's arguments filed October 26th, 2007 with respect to Claims 1-15 and 17-20 have been considered but are not persuasive.

4. As to the applicant's arguments with respect to the 35 USC § 112 rejections, please see the maintained rejection below for further clarification.

5. As to the applicant's arguments with respect to exemplarily Claim 1 (including Claims 11, 17, and 20) for the prior art(s) allegedly not teaching "generating a plurality

of collections of items of data each time the set of computer-executable instructions are executed, wherein each of the collections comprise contents and a sequence, and wherein the contents of each of the collections are identical and the sequence of each of the collections are identical," the examiner respectfully disagrees. Gray p. 246, col. 2 teaches:

> "In essence, a random number generator is constructed for elements in the desired range. The algorithm is: Pick a prime P larger than N and a generator G for the multiplicative group modulo P. Then the series is: <G^i mod P | i=1,...,P and (G^i mod P) <= N>. (7) Program (8) generates the series suggested by equation (7)...To understand how it works, consider the numbers between 1 and 10. The powers of 2 mod 11 form a dense unique sequence of these numbers: 2, 4, 8, 5, 10, 9, 7, 3, 6, 1. The generator scheme is ideal-it uses linear time and constant space."

Program 8 generates a series of random numbers based on a formula. As such, each time the series is generated using the same numbers for the formula, the same (random) series will be created. As such, the same content and the same random sequence will be created. Program 8 in Gray generates a series of random numbers (see citing above). In Gray, p. 247, program 13 calls (uses) program 8 multiple times, each within its own for loop. As such, it appears that Gray generates collections of these random series (with all P, G, seed, and N values being #defined unchanging numbers) in at least program 13.

6. Any other claims argued merely because of a dependency on a previously argued claim(s) in the arguments presented to the examiner, dated October 26th, 2007,

are moot in view of the examiner's interpretation of the claims and art and are still considered rejected based on their respective rejections from at least a prior Office action (part(s) of recited again below).

Response to Amendment

Drawings

7. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings. For example, the drawings should be carefully checked to ensure that all reference numerals are described in the specification, that no one reference numeral describes two separate drawing elements, or that the specification contains no reference to numerals not in the drawings.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-15 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. This rejection is maintained from at least a prior Office action. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention. The applicants point to paragraphs [0025], [0029], [0041]-[0043], and [0054] in the specification as having support for the limitation "wherein the seed is defined by a user input" in the independent Claims 1, 11, and 20. The specification indicates that a user interacts with a computing application (paragraph [0029]), and in another paragraph a seed is set (paragraph [0041]). There does not appear to be explicit or inherent support in the specification or the originally filed claims that shows support for the "wherein the seed is defined by a user input" limitation. The examiner agrees that in order to generate repeatable synthetic data, a seed needs to be set. However, no where is the specification does it state that the user is explicitly setting the seed. "A user interacting with a computing application on a client computing device to generate repeatable synthetic data" can merely be a user clicking on a button on the screen that generates repeatable synthetic data where the seed is established by a computer. The user specifically setting the seed is not supported by the specification. Since every independent claim claims this subject matter, this rejection propagates downward through dependent Claims 2-10, 12-15, 18, and 19.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1-10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Quickly Generating Billion-Record Synthetic Databases" (Gray et al.) in view of U.S. Patent No. 6,324,647 (Bowman-Amuah), further in view of "Practical UNIX and Internet Security, 3rd edition" (O'Reilly).

For **Claim 1**, Gray teaches: "One or more computer-readable storage media having stored thereon a set of computer-executable instructions to perform a method for generating data, [Gray, p. 243, Introduction with Gray, p. 244, Sequential Database Generation] the method comprising:

- ...accepting, as a first input, at least one of: (a) data sets and (b) data elements from which synthetic data is generated, said synthetic data having a sequence; [Gray, program 6, "answer cursor" with Gray, page 246, Generating Dense Unique Random Data]

- receiving a seed [Gray, p. 246, program 6, "i" in for loop #2 with Gray, p. 246, Generating Dense Unique Random Data (col. 1)] as a second input to a deterministic data generation module, the seed indicating a position in the sequence of the synthetic data, the position representing a starting point in the sequence from which the synthetic data is used as input to a process whose performance is to be evaluated" [Gray, p. 246, program 6, "i" with Gray, p. 246, Generating Dense Unique Random Data with Gray, p. 243, Abstract].

Gray discloses the above limitations but does not expressly teach:

- "...generating a plurality of collections of items of data each time the set of computer-executable instructions are executed, wherein each of the collections comprise contents and a sequence, and wherein the contents of each of the collections are identical and the sequence of each of the collections are identical
- ...wherein the seed is defined by a user input."

With respect to Claim 1, an analogous art, Bowman-Amuah, teaches:

- "...generating a plurality of collections of items of data each time the set of computer-executable instructions are executed, wherein each of the collections comprise contents and a sequence, and wherein the contents of each of the collections are identical and the sequence of each of the collections are identical" [Bowman-Amuah, cols. 101-102, lines 60-11 with Gray, p. 246, Generating Dense Unique Random Data with program (8) with Gray, p. 247, program (13)].

With respect to Claim 1, an analogous art, O'Reilly, teaches:

- "...wherein the seed is defined by a user input" [O'Reilly, p. 3, boxed area].

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Bowman-Amuah and O'Reilly with Gray because the inventions are directed towards creating data.

Bowman-Amuah's and O'Reilly's inventions would have been expected to successfully work well with Gray's invention because the inventions use computers to create data. Gray discloses quickly generating billion-record synthetic databases comprising data generators, however Gray does not explicitly disclose that the data generated is identical for each time the data is generated (repeatable) nor that the seed is obtained from user input. Bowman-Amuah discloses a system, method and article of manufacture for security management in a development architecture framework comprising test data generation tools. O'Reilly discloses a computer book for internet security comprising the existence of a UNIX random number generator using non-deterministic sources of bits with seed information from many random sources such as user input.

It would have been obvious to one of ordinary skill in the art at the time of invention to take the test data generation tools from Bowman-Amuah and install them into the invention of Gray, thereby offering the obvious advantage of maintaining input data and expected results associated with a test plan. Using O'Reilly with Gray would offer the obvious advantage of seeding a random number generator from non-deterministic sources to offer higher randomness for the random numbers generated.

Claim 2 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media as recited in claim 1,

wherein the computer-executable instructions comprise a computing application" [Gray, page 243, Abstract with Gray, p. 246, program 6].

Claim 3 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media as recited in claim 2, wherein the computing application comprises a linear congruential generation function" [Gray, page 243, Abstract].

Claim 4 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media as recited in claim 1, wherein the seed is set for each discrete data element that may be re-generated" [Gray, page 246, program 6 with Bowman-Amuah, cols. 101-102, lines 60-11].

Claim 5 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media in claim 1, wherein the computer-executable instructions operate to generate data in a serial fashion" [Gray, page 244-245, Sequential Database Generation].

Claim 6 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media as recited in claim 1, wherein the computer-executable instructions operate to generate data in a parallel fashion" [Gray, page 245, Parallel Database Generation].

Claim 7 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media as recited in claim 1, wherein the method is performed in a database environment" [Gray, page 243, Introduction].

Claim 8 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media as recited in claim 1, wherein the first input comprises any of a range of letters, a range of numbers, a range of strings, a range of data sets, letters, numbers, strings, and data sets" [Bowman-Amuah, cols. 101-102, lines 60-3 with Gray, page 246, Generating Dense Unique Random Data].

Claim 9 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media as recited in claim 1, wherein the method further comprises:

- using a communication means [Gray, p. 243, The Computation Model with Gray, p. 243, Fig. 2] to communicate the synthetic data to cooperating data environments" [Gray, p. 244, above table 3 with Gray, p. 243, Fig. 2].

Claim 10 can be mapped to Gray (as modified by Bowman-Amuah and O'Reilly) as follows: "The one ore more computer-readable storage media as recited in claim 1, wherein the synthetic data is data for use in benchmarking activities having a predefined data schema definition" [Gray, page 243, Abstract].

For **Claim 20**, Gray teaches: "A method to generate ... synthesized data [Gray, page 243, Introduction] comprising:

- executing a deterministic data generation function to generate a plurality of data sets [Gray, page 243, Introduction] corresponding to sequential numbers, the numbers associated with a data element of each data set, wherein each data element and associated number are identical in each data set; [Gray, page 246,

Generating Dense Unique Random Data with program (8) with Gray, p. 247, program (13)]

- setting a seed [Gray, page 246, program 6 with Gray, page 247, program 13 with Gray, page 248, program 18 with Gray, page 250, Generating Non Uniform Data] to act as input for the deterministic data generation function such that the input drives the deterministic data generation function to generate data corresponding to a particular sequential number [Gray, page 246, Generating Dense Unique Random Data, specifically, the first paragraph under the heading] and
- testing performance of a system by providing said data set as input to said system and measuring behavior of said system using said data set" [Gray, p. 243, Abstract with Gray, p. 243, Introduction in (col. 1)].

Gray discloses the above limitations but does not expressly teach: "...repeatable

- ...wherein the seed is defined by a user input."

With respect to Claim 20, an analogous art, Bowman-Amuah, teaches: "...repeatable" [Bowman-Amuah, cols. 101-102, lines 60-11].

With respect to Claim 20, an analogous art, O'Reilly, teaches:

- "...wherein the seed is defined by a user input" [O'Reilly, p. 3, boxed area].

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Bowman-Amuah and O'Reilly with Gray because the inventions are directed towards creating data.

Bowman-Amuah's and O'Reilly's inventions would have been expected to successfully work well with Gray's invention because the inventions use computers to create data. Gray discloses quickly generating billion-record synthetic databases comprising data generators, however Gray does not explicitly disclose that the data generated is identical for each time the data is generated (repeatable) nor that the seed is obtained from user input. Bowman-Amuah discloses a system, method and article of manufacture for security management in a development architecture framework comprising test data generation tools. O'Reilly discloses a computer book for internet security comprising the existence of a UNIX random number generator using non-deterministic sources of bits with seed information from many random sources such as user input.

It would have been obvious to one of ordinary skill in the art at the time of invention to take the test data generation tools from Bowman-Amuah and install them into the invention of Gray, thereby offering the obvious advantage of maintaining input data and expected results associated with a test plan. Using O'Reilly with Gray would offer the obvious advantage of seeding a random number generator from non-deterministic sources to offer higher randomness for the random numbers generated.

13. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Quickly Generating Billion-Record Synthetic Databases" (Gray et al.) in view of "Practical UNIX and Internet Security, 3rd edition" (O'Reilly).

Claim 11 can be mapped to Gray as follows: "A method for generating data [Gray, page 243, Introduction] comprising:

- providing a deterministic data generation module stored on at least one medium, [Gray, page 243, Introduction with Gray, page 244, Sequential Database Generation] the deterministic data generation module accepting inputs for processing to generate a plurality of data sets, each data set having synthesized data [Gray, program 6, "answer cursor" with Gray, page 246, Generating Dense Unique Random Data] wherein within the data set each data element has a sequence number, and each data set is organized such that the data is positioned from lowest sequence number to highest sequence number in a sequential fashion, and wherein the synthesized data of each data set is identical; [Gray, page 246, Generating Dense Unique Random Data with Gray, page 248, Generating Indices on Random Data with program (8) with Gray, p. 247, program (13)] and
- providing a seed [Gray, p. 246, program 6, "i" in for loop #2 with Gray, p. 246, Generating Dense Unique Random Data (col. 1)] as input to the deterministic data generation module, the seed acting to position the deterministic data generation module to generate data having a predefined sequence number, wherein the seed value is derived from the predefined sequence number, and wherein the sequence number represents a starting point from which the synthetic data is used as input to process whose performance is to be evaluated" [Gray, page 246, Generating Dense Unique Random Data].

With respect to Claim 11, an analogous art, O'Reilly, teaches:

- "...wherein the seed is defined by a user input" [O'Reilly, p. 3, boxed area].

It would have been obvious to one of ordinary skill in the art at the time of invention to combine O'Reilly with Gray because the inventions are directed towards creating random data.

O'Reilly's invention would have been expected to successfully work well with Gray's invention because the inventions use computers to create random data. Gray discloses quickly generating billion-record synthetic databases comprising data generators, however Gray does not explicitly disclose that the seed is obtained from user input. O'Reilly discloses a computer book for internet security comprising the existence of a UNIX random number generator using non-deterministic sources of bits with seed information from many random sources such as user input.

It would have been obvious to one of ordinary skill in the art at the time of invention to take the test data generation tools from Bowman-Amuah and install them into the invention of Gray, thereby offering the obvious advantage of seeding a random number generator from non-deterministic sources to offer higher randomness for the random numbers generated.

Claim 12 can be mapped to Gray (as modified by O'Reilly) as follows: "The method as recited in claim 11, further comprising communicating the synthesized data to cooperating data environments" [Gray, page 244, above table 3].

Claim 13 can be mapped to Gray (as modified by O'Reilly) as follows: "The method as recited in claim 11, further comprising changing the value of the seed" [Gray, page 246, program 6, "i" in for loop #2].

Claim 14 can be mapped to Gray (as modified by O'Reilly) as follows: "The method as recited in claim 11, processing the synthesized data by cooperating environments as part of a benchmarking study" [Gray, p. 243, Abstract with Gray, p. 243, Introduction in (col. 1)].

Claim 15 can be mapped to Gray (as modified by O'Reilly) as follows: "The method as recited in claim 11, further comprising schematizing the synthesized data according to a predefined data schema definition" [Gray, page 247, program 13].

14. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Quickly Generating Billion-Record Synthetic Databases" (Gray et al.) in view of U.S. Patent No. 6,324,647 (Bowman-Amuah).

For **Claim 17**, Gray teaches: "A first system to generate...synthetic data [Gray, page 243, Introduction] comprising:

- a means to generate a plurality of deterministic sets of synthesized data, [Gray, page 243, Introduction] wherein each data element of each data set has a sequential number, and wherein the data elements and the corresponding sequential number of each data element are identical in each data set; [Gray, page 246, Generating Dense Unique Random Data with program (8) with Gray, p. 247, program (13)]

- a means to seed the generating function [Gray, page 246, program 6] to generate data sets having a particular sequence number that is chosen based on the seed [Gray, page 246, Generating Dense Unique Random Data] and
- a mechanism to test performance of a second system by providing at least one deterministic set of synthesized data as input to said second system and measuring behavior of said second system using said at least one set of synthesized data" [Gray, p. 243, Abstract with Gray, p. 243, Introduction in (col. 1)].

Gray discloses the above limitations but does not expressly teach: "...repeatable."

With respect to Claim 17, an analogous art, Bowman-Amuah, teaches: "...repeatable" [Bowman-Amuah, cols. 101-102, lines 60-11].

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Bowman-Amuah with Gray because both inventions are directed towards creating test data for a database application.

Bowman-Amuah's invention would have been expected to successfully work well with Gray's invention because both inventions create test data for use in databases. Gray discloses quickly generating billion-record synthetic databases comprising data generators, however Gray does not explicitly disclose that the data generated is identical for each time the data is generated (repeatable). Bowman-Amuah discloses a system, method and article of manufacture for security management in a development architecture framework comprising test data generation tools.

It would have been obvious to one of ordinary skill in the art at the time of invention to take the test data generation tools from Bowman-Amuah and install them into the invention of Gray, thereby offering the obvious advantage of maintaining input data and expected results associated with a test plan.

Claim 18 can be mapped to Gray (as modified by Bowman-Amuah) as follows: "The system as recited in claim 17, wherein the seed comprises a value in a range from one to the maximum number of data elements of the data set" [Gray, page 246, Generating Dense Unique Random Data with Gray, page 246, program 6].

Claim 19 can be mapped to Gray (as modified by Bowman-Amuah) as follows: "The system as recited in claim 17, further comprising a communicating means, [Gray, page 243, The Computation Model] the communicating means for use to communicate the generated synthesized data to cooperating data environments" [Gray, page 244, above table 3].

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent S. Stace whose telephone number is 571-272-8372 and fax number is 571-273-8372. The examiner can normally be reached on M-F 9am-5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu M. Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brent Stace B.S.

Etienne P. LeRoux

ETIENNE LEROUX
PRIMARY EXAMINER